

WHAT IS CLAIMED IS:

1. A charged particle beam apparatus system comprising a circuit pattern inspection apparatus that irradiates a charged particle beam on a plurality of areas of a circuit pattern, detects secondary charged particles generated from the circuit pattern to form images of the irradiated areas, and compares the images of the plurality of areas to thereby detect a defect or a foreign-particle in the circuit, and a charged particle beam apparatus that is used for observation or analysis of the defect specified by means of the pattern inspection apparatus,

wherein charging is formed by means of irradiation of the charged particle beam or carbon-base deposit is formed on the irradiated area as the result of interaction between the charged particle beam and gas that is remaining in the circuit pattern inspection apparatus or generated from the sample, and the charging or deposit is used as a mark in the charged particle beam apparatus.

2. The charged particle beam apparatus according to claim 1, wherein a gas introduction mechanism for spraying gas onto the circuit pattern is provided in the pattern inspection apparatus.

3. The charged particle beam apparatus according to claim 2, wherein a cooling unit for cooling the circuit pattern is provided.

4. The charge particle beam apparatus according to claim 1, wherein the charged particle beam is irradiated so as to cause charging on the circuit pattern in the pattern inspection apparatus.

5. A method for forming an image in which a charged particle beam is scanned on a sample to form an image of the scanned area, wherein the charged particle beam is irradiated selectively onto a specified portion so as to cause charging on the specified portion that is different from charging of the scanned area other than the specified portion or so as to form a carbon-base deposit on the specified portion.

6. An inspection method in which a charged particle beam is scanned onto a semiconductor device in a first charged particle beam apparatus to form an image of the scanned area, the charged particle beam is irradiated selectively onto a specified portion so as to cause charging on the specified portion that is different from charging of the scanned area other than the specified portion or so as to form a carbon-base deposit on the specified portion, the semiconductor device is transferred to a second charged

particle beam apparatus keeping the charging condition and the deposit condition of the deposit as it is, and the charged particle beam is irradiated onto the portion to be inspected that is specified by the charging or deposit for inspection of the portion.

7. A charged particle beam apparatus system comprising a circuit pattern inspection apparatus that irradiates a charged particle beam on a plurality of areas of a circuit pattern, detects secondary charged particles generated from the circuit pattern to form images of the irradiated areas, and compares the formed images of the plurality of areas to thereby detect a defect or a foreign-particle in the circuit, and comprising a charged particle beam apparatus that irradiates a charged particle beam onto the defect, the area including foreign-particle, or the peripheral area that has been detected by means of the circuit pattern inspection apparatus and detects charged particles released from the defect or the area including foreign-particle to thereby form an image of the defect or the area including foreign-particle,

wherein a mark for specifying the foreign-particle or defect detected by means of the circuit pattern inspection apparatus is formed by means of irradiation of the charged particle beam so that charging on the mark is different from

that on the area other than the mark or carbon-base deposit, and the field of view is matched for forming an image of the defect or the area including foreign-particle in the charged particle beam apparatus based on the formed mark.

8. A charged particle beam apparatus comprising a charged particle source, a scanning deflector for scanning a charged particle beam released from the charged particle source on a sample, an image shift deflector and/or sample stage for changing the scanning position of the scanning deflector on the sample, and a sample image display unit for forming an image based on the detection of charged particles released from the sample,

wherein the charged particle beam apparatus additionally comprises a control unit for setting the scanning position of the charged particle beam on the sample based on the position information obtained by means of another inspection apparatus and for controlling the image shift deflector and/or sample stage to thereby shift the scanning position based on the charged mark or carbon-base deposit formed on the sample in above-mentioned another inspection apparatus.

9. A circuit pattern inspection apparatus that irradiates a charged particle beam onto a plurality of areas of a circuit pattern and detects secondary charged particles

released from the circuit pattern to form an image of the irradiated areas, and compares a plurality of formed images to detect a defect or a foreign-particle of the circuit,

wherein a mark that can be used for specifying the detected defect or foreign-particle of the circuit is formed in the form of charging or deposition of carbon-base deposit by means of irradiation of the charged particle beam.